

Mineral Industry Surveys

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ZINC IN FEBRUARY 2000

Estimated domestic mine production in February, expressed in zinc content of ore, remained unchanged from the previous month's output, but was nearly 11% higher than in February 1999. Smelter production in February increased by about 10% over production in January, but was slightly lower than in February of last year. Apparent consumption was nearly 2% higher than in January, but was exactly the same as in January 1999.

The *Platt's Metals Week* composite price for North American Special High Grade zinc in February declined by about 7%, to 53.91 cents per pound, a 3.81 cent decline from January. The February price was still nearly 6% higher than last year. However, by the end of 1999, the price for zinc rose to 57.72 cents per pound. Since the beginning of 2000, the price began to decline despite optimistic predictions by industry experts. At the American Zinc Association annual conference in February, a number of attendees remained optimistic about the future of zinc. Brook Hunt and Associates Ltd. expects zinc prices to average \$1,300 per ton this year and rise to \$1,650 by 2001, rather than 2005 as it forecasted previously (American Metal Market, 2000b).

Canadian gold miner Cambior Inc. sold its zinc assets to Breakwater Resources Ltd. for a total of \$48 million. The agreement covers the sale of the Bouchard-Hebert and Langlois zinc-copper operations in the Abitibi region of northwestern Quebec with related net working capital and metal hedging obligations. Breakwater provided a \$2 million down payment, with the remaining \$46 million to be paid at closing, which was expected to occur about mid April and will be subject to usual final net working capital adjustments. The agreement is subject to Breakwater arranging acceptable financing. Cambior's obligations are subject to obtaining written consents and the discharge of security interests in the zinc-copper mines from its financial creditors and the transfer of base metal hedging and other material contracts to Breakwater. After paying sale-related expenses, and repayment of outstanding loans, Cambior will use the remaining \$4 million for its own working capital. In addition to copper, Bouchard-Hebert produced a total of 39,100 tons of zinc in 1999 and has reserves of 5.3 million tons grading 4.73% zinc. During

the same year, Langlois produced 31,700 tons of zinc in concentrate and has reserves of 5.6 million tons grading 9.45% zinc. The proposed sale should increase Breakwater's annual production to about 250,000 tons of contained zinc in concentrate from six mines. The company currently operates four zinc mines: Bougrine in Tunisia, El Mochito in Honduras, El Toquito in Chile, and Nanisivik in Canada. Breakwater also owns the Caribou Mine in New Brunswick, Canada, currently on care-and-maintenance pending higher zinc prices (Platt's Metals Week, 2000b). Cambior intends to actively continue the process of reducing its debt leverage by focusing on the disposition of base metal assets and development of gold mining operations.

An additional exchange of assets took place between Cominco Ltd. and Expatriate Resources Ltd., both of Canada. Expatriate is to acquire 100% of Cominco's interest in some 2,800 mineral claims in the Finlayson Lake volcanogenic belt in southeast Yukon, Canada, including the Kudz Ze Kayah polymetallic deposit. In addition to the claims, the assets include Cominco's water license for development of Kudz Ze Kayah, the surface lease for an access road, and an agreement with indigenous local groups. Expatriate, already owns a polymetallic mine in the Finlayson District—the Wolverine Mine. The Wolverine deposit, jointly owned with Atna Resources Ltd. of Canada, has indicated and inferred resources of about 6.24 million tons averaging 12.66% zinc, 1.55% lead, 1.33% copper, 370 grams per ton (g/t) silver, and 1.76 g/t gold. As the minority partner, Atna will have 60 days to accept Expatriate's offer of inclusion by paying for a 40% share of the cost of Cominco's assets. With the purchase, Expatriate's resources and Atna's resources in the Finlayson District could total 19 million tons averaging 8.15% zinc, 1.64% lead, 0.98% copper, 208 g/t silver, and 1.5 g/t gold (Mining Journal, 2000). The Kudz Ze Kayah deposit has many similarities with the Wolverine deposit, including, unfortunately, a high selenium content. However, Boliden Ltd., a 42% owner of Expatriate, identified a number of options for onsite treatment of concentrates that would reduce selenium and result in readily salable products at reasonable cost.

The Bell Allard underground zinc mine in Quebec, Canada, has

been operating at 65% capacity since February 24, when the mine's underground shaft compartment was damaged by a hoisting skip malfunction, and operations were temporarily suspended at the damaged shaft. Noranda Inc. is hoping to restart operations during April (Platt's Metals Week, 2000a).

Brazilian zinc producer, Cia Paraibuna de Metais, is planning a \$100 million expansion of its Juiz de Fora smelter that would more than double zinc production over the next 3 years. The first step, which has already begun, is the debottlenecking project that will increase production from the current 77,000 tons per year to 86,000 tons per year. The major part of the expansion to reach 170,000 tons per year of refined zinc involves building two new power plants of 50 and 40 megawatt capacity. A \$1.77 million feasibility study is already underway. On completion of the feasibility study, the Brazilian Government will offer a tender for the construction of the two power plants. Production at Cia Mineraria de Metais' Tres Maria, the second of two Brazilian smelters, is also to increase from 120,000 tons to 160,000 tons per year by 2002. Although three new galvanizing plants will come on stream next year, the anticipated increase of domestic consumption may not be enough to absorb the increased output of both refiners. Consequently, some of the refined zinc will probably be exported (Metal Bulletin, 2000a).

Peruvian zinc miner Sociedad Minera El Brocal S.A. is planning to increase production at its Colquijirca Mine near Cero de Pasco by 20% in order to compensate for lower grade ores. The project is to be completed by the end of 2000 at a cost of \$7 million. The project includes the replacement of flotation cells at the beneficiation plant, the purchase of new trucks, and the construction of a new milling plant. El Brocal produced 44,618 tons of zinc in concentrate last year, up 8.9% over 1998 (Metal Bulletin, 2000b).

At the same time as Australia's biggest zinc producer, Pasmaenco Ltd., is reaching full capacity at its Century Mine in Queensland, preparations are underway to close its century-old zinc mining operations at Broken Hill in New South Wales. As a prelude to the impending closure in 2006, 52 jobs will be eliminated by the end of April 2000, reducing the number of miners to less than 600 for the first time since the mine opened (American Metal Market, 2000a).

According to CRU International Ltd. in the United Kingdom, the zinc industry of Kazakhstan is to expand in the next 2 years. Kazakhmys is planning to build a 100,000-ton-per-year zinc smelter at Balkhash. The feed for the new smelter will come from the increased production at the Dzhezkent copper mine. In 1999, the mine produced 95,857 tons of zinc in concentrate, up 46.8% from 1998, as a by-product of copper mining. Because the zinc concentrate is of poor quality, often grading at about 42%, the only market for it has been Kaztsink. Kazakhmys has decided that it will be more profitable to build a smelter rather than pay high treatment charges to Kaztsink. Investment for expansion is expected to reach \$15 million in 2000. Kaztsink also will increase

zinc production in Kazakhstan. Kaztsink plans to increase output at its Ust-Kemenogors smelter from 134,200 tons per year in 1999 to 144,000 tons in 2000 and 156,000 tons the following year. The concentrate for increased smelter production is to come from the renovated Zyryanovsk concentrator that will process 1.5 million tons of ore. Additional feed will come from the Tishin Mine, where an investment of \$6 million should raise ore production to 1.25 million tons this year and 1.40 million tons in 2001. Production in 1999 was 1.15 million tons of ore (CRU, 2000).

Ireland's Lisheen zinc-lead mine is expected to reach full production capacity of 330,000 tons per year of zinc and 40,000 tons per year of lead in concentrate in the second half of 2000. The mine, 160 kilometers southwest of Dublin in County Tipperary, is jointly owned by Ivernia West Plc and Minorco SA. Since opening in February, the mine has produced 310,000 tons of ore (Platt's Metals Week, 2000c).

Update.—The third shipment of zinc concentrate from Pasmaenco's new Century Mine left the Gulf of Carpentaria bound for the company's Budel smelter in the Netherlands. The 27,000-ton shipment left the Australian port on March 23. The next shipment was scheduled to depart for Budel in early April (Platt's Metals Week, 2000d).

Ireland's Tara Mine is currently running at about 80% capacity following a settlement with workers unions in March. The current production of 170,000 tons per month should increase to 190,000 tons by May and reach 210,000-220,000 ton output in June. The recruitment and training program, agreed to by unions in February, is on target and should avoid the need for contract workers. Finish base metals producer, Outokumpu Oy, has not yet given its approval for the proposed southeast extension of the mine. This extension is expected to prolong the mine's life until 2008 (Platt's Metals Week, 2000e).

References Cited

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- Platt's Metals Week, 2000a, Bell-Allard mine set for April 3 restart: Platt's Metals Week, v. 71, no. 13, March 27, p. 10.
- 2000b, Cambior sells Quebec zinc assets to Breakwater: Platt's Metals Week, v. 71, no. 12, March 20, p. 2-3.
- 2000c, Lisheen to reach capacity in H2: Platt's Metals Week, v. 71, no. 13, March 27, p. 10.
- 2000d, Pasmaenco makes third Century shipment: Platt's Metals Week, v. 71, no. 14, April 3, p. 12.
- 2000e, Tara zinc mine at 80% capacity: Platt's Metals Week, v. 71, no. 12, March 20, p. 3.

TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons; unless otherwise specified)

	1999		2000		
	January- December p/	December	January	February	January- February
Production:					
Mine, zinc content of concentrate	813,000	69,600	68,000	68,000 e/	136,000
Mine, recoverable zinc	771,000	65,900	64,400	65,000 e/	129,000
Smelter, refined zinc	355,000	27,200	28,300 r/	31,100	59,500
Oxide (gross weight)	123,000	7,910	8,470 r/	9,850	18,300
Consumption:					
Refined zinc, reported	504,000	39,700	43,600 r/	45,300	88,900
Ores e/ (zinc content)	1,020	85	85	85	170
Zinc-base scrap e/ (zinc content)	225,000	18,800	18,800	18,800	37,500
Copper-base scrap e/ (zinc content)	200,000	16,700	16,700	16,700	33,400
Aluminum- and magnesium-base scrap e/ (zinc content)	1,240	103	103	103	206
Total e/	932,000	75,400	79,300 r/	80,900	
Apparent consumption, metal 2/	1,430,000	106,000	112,000 r/	114,000 3/	226,000
Stocks of refined (slab) zinc, end of period:					
Producer 4/	XX	8,730	8,730	8,730	XX
Consumer 5/	XX	61,500	63,600 r/	63,700	XX
Merchant	XX	9,690	9,690	9,670	XX
Total	XX	80,000	82,100 r/	82,100	XX
Shipments of zinc metal from Government stockpile	22,100	2,290	3,970	2,710	6,690
Imports for consumption:					
Refined (slab) zinc	1,060,000	76,400	82,100	NA	82,100 6/
Oxide (gross weight)	65,200	6,240	6,200	NA	6,200 6/
Ore and concentrate (zinc content)	74,600	16,000	4,570	NA	4,570 6/
Exports:					
Refined (slab) zinc	1,880	299	39	NA	39 6/
Oxide (gross weight)	7,260	452	530	NA	530 6/
Ore and concentrate (zinc content)	531,000	31,600	8,520	NA	8,520 6/
Waste and scrap (gross weight)	28,200	2,910	1,770	NA	1,770 6/
Price:					
London Metal Exchange, average, dollars per metric ton	1,075.96	1,183.34	1,178.43	1,094.50	1,136.46
Platt's Metals Week North American Special High Grade, average, cents per pound	53.48	57.94	57.72	53.91	55.82

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data based on reported consumption, stocks and estimated trade data.

4/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

5/ Includes an estimate for companies that report annually.

6/ Includes data through January only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

Month	Beginning stocks 2/	Production	Shipments	Ending stocks 2/
1999:				
February	9,590	27,700	28,900	8,360
March	8,360	31,900	30,100	10,200
April	10,200	30,100	30,900	9,380
May	9,380	30,100	30,100	9,380
June	9,380	28,200	28,600	8,930
July	8,930	28,600	28,800	8,770
August	8,770	30,600	31,400	7,900
September	7,900	27,200	27,000	8,120
October	8,120	31,500	30,700	8,960
November	8,960	31,200	31,400	8,730
December	8,730	27,200	27,200	8,730
Year	XX	355,000	355,000	XX
2000:				
January	8,730	28,300 r/	28,300 r/	8,730
February	8,730	31,100	31,100	8,730
January - February	XX	59,500	59,500	XX

r/ Revised. XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
ZINC OXIDE PRODUCED IN THE UNITED STATES 1/ 2/

(Metric tons, gross weight)

Month	Beginning stocks	Production	Shipments	Ending stocks
1999:				
February	4,810	12,400	12,900	4,270
March	4,270	11,800	11,800	4,270
April	4,270	11,800	12,400	3,680
May	3,680	11,900	11,900	3,640
June	3,640	8,680	9,010	3,310
July	3,310	8,720	8,740	3,290
August	3,290	9,150	9,020	3,420
September	3,420	9,230	9,070	3,570
October	3,570	9,320	9,160	3,730
November	3,730	9,880	9,650	3,960
December	3,960	7,910	8,620	3,250
Year	XX	123,000	125,000	XX
2000:				
January	3,250	8,470 r/	8,260 r/	3,460
February	3,460	9,850	9,340	3,960
January-February	XX	18,300	17,600	XX

r/ Revised. XX Not applicable.

1/ Excludes impure zinc oxide produced from other processes.

2/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 4
ESTIMATED DISTRIBUTION OF ZINC OXIDE SHIPMENTS BY INDUSTRY 1/ 2/ 3/

(Metric tons, gross weight)

Industry	1999		2000		
	January- December p/	December	January r/	February	January- February
Agriculture	1,660	122	132	125	257
Ceramics	6,380	441	430	463	893
Chemicals	27,200	1,860	1,760	2,060	3,820
Paints	5,060	309	302	324	626
Photocopying	3,080	231	217	261	478
Rubber	80,200	5,530	5,310	5,980	11,300
Other	1,530	117	107	131	238
Total	125,000	8,620	8,260	9,340	17,600

p/ Preliminary. r/ Revised.

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished

2/ May include in-house consumption.

3/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 5
APPARENT CONSUMPTION OF REFINED ZINC
ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	1999		2000		
	January- December p/	December	January r/	February 2/	January- February
Galvanizing:					
Sheet and strip	575,000	43,000	44,400	44,200	88,500
Other	221,000	15,800	16,500	16,400	32,900
Total	796,000	58,900	60,800	60,600	121,000
Brass and bronze	206,000	15,000	16,200	16,400	32,600
Zinc-base alloy	263,000	19,200	20,400	20,400	40,800
Other uses 3/	166,000	12,400	14,800	16,300	31,200
Grand total	1,430,000	106,000	112,000	114,000	226,000

p/ Preliminary. r/ Revised.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Data based on reported consumption, stocks and estimated trade data.

3/ Includes zinc used in making zinc dust, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 6
AVERAGE MONTHLY ZINC PRICES 1/

Month	North American ¢/lb.	LME cash	
		¢/lb.	\$/t
1999:			
February	50.90	46.13	1,016.90
March	51.27	46.70	1,029.61
April	50.66	46.20	1,018.60
May	52.09	47.19	1,040.33
June	50.13	45.36	1,000.11
July	53.72	48.61	1,071.69
August	56.26	51.26	1,130.16
September	58.65	54.13	1,193.34
October	56.61	52.09	1,148.36
November	56.53	52.02	1,146.77
December	57.94	53.68	1,183.34
Year	53.48	48.80	1,075.96
2000:			
January	57.72	53.45	1,178.43
February	53.91	49.65	1,094.50
January - February	55.82	51.55	1,136.46

1/ Special High Grade.

Source: Platt's Metals Week.

TABLE 7
U.S. EXPORTS OF ZINC 1/

Material	1999		2000 January 2/	
	Quantity	Value	Quantity	Value
	(metric tons)	(thousands)	(metric tons)	(thousands)
Refined (slab) zinc	1,880	\$2,220	39	\$47
Ore and concentrate (zinc content)	531,000	317,000	8,520	5,160
Waste and scrap (gross weight)	28,200	24,400	1,770	1,150
Powders, flakes, and dust (zinc content)	5,050	9,500	409	649
Oxide (gross weight)	7,260	11,700	530	842
Chloride (gross weight)	3,200	2,140	78	95
Sulfate (gross weight)	4,750	2,940	431	281
Compounds, other (gross weight)	864	3,280	31	97

1/ Data are rounded to no more than three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	1999		2000 January 2/	
	Quantity	Value	Quantity	Value
	(metric tons)	(thousands)	(metric tons)	(thousands)
Refined (slab) zinc	1,060,000	\$1,050,000	82,100	\$99,700
Ore and concentrate (zinc content)	74,600	40,500	4,570	912
Waste and scrap (gross weight)	26,600	13,100	1,290	699
Powders, flakes, and dust (zinc content)	21,300	38,400	1,560	3,000
Oxide (gross weight)	65,200	66,600	6,200	6,780
Chloride (gross weight)	1,650	1,520	122	114
Sulfate (gross weight)	10,500	6,350	870	451
Compounds, other (gross weight)	1,340	1,420	79	96

1/ Data are rounded to no more than three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 9
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE
STOCKPILE 1/

(Metric tons)

Month	Beginning inventory	Shipments	Ending inventory
1999:			
February	197,000	2,750	194,000
March	194,000	2,800	191,000
April	191,000	1,640	190,000
May	190,000	736	189,000
June	189,000	800	188,000
July	188,000	1,450	187,000
August	187,000	2,830	184,000
September	184,000	2,310	181,000
October	181,000	--	181,000
November	181,000	2,320	179,000
December	179,000	2,290	177,000
Year	XX	22,100	XX
2000:			
January	177,000	3,970	173,000
February	173,000	2,710	170,000
January - February	XX	6,690	XX

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 10
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

Material and country	General imports		Imports for consumption	
	2000		2000	
	1999	January 2/	1999	January 2/
Ore and concentrate (zinc content):				
Australia	7,540	--	7,540	--
Mexico	14,000	4,570	13,700	4,570
Peru	43,700	886	40,600	--
South Africa	12,800	--	12,800	--
Other	102 r/	--	-- r/	--
Total	78,100	5,460	74,600	4,570
Blocks, pigs, or slab:				
Brazil	19,700	1,270	19,700	1,270
Canada	535,000	47,500	535,000	47,500
China	62,500	983	55,800	983
Finland	13,300	--	13,300	--
Kazakhstan	135,000	--	135,000	--
Korea, Republic of	51,700	7,250	51,700	7,250
Mexico	95,100	8,380	95,100	8,380
Peru	68,500	3,270	68,500	3,270
Poland	13,300	2,000	13,300	2,000
Russia	16,100	6,110	16,100	6,110
South Africa	6,570	2,570	6,570	2,570
Spain	11,700	2,800	11,700	2,800
Other	27,700 r/	--	35,200 r/	--
Total	1,060,000	82,100	1,060,000	82,100
Dross, ashes, & fume (content)	20,000	800	20,000	800
Grand total	1,150,000	88,400	1,150,000	87,500
Oxide (gross weight):				
Canada	35,800	3,740	35,800	3,740
China	1,790	40	1,790	40
Germany	1,270	50	1,270	50
Japan	1,150	89	1,150	89
Mexico	20,700	2,010	20,700	2,010
Netherlands	2,660	109	2,660	109
Other	1,790 r/	166	1,790 r/	166
Total	65,200	6,200	65,200	6,200
Other (gross weight):				
Waste and scrap	26,600	1,290	26,600	1,290
Sheets	22,600	1,740	22,600	1,740
Powders, flakes, and dust (zinc content)	21,300	1,560	21,300	1,560

r/ Revised. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.